Frequently-Asked Questions

Environmental Tradeoffs

Here are answers to questions that people have asked about the environmental tradeoffs of using in-situ burning (ISB).

Q. What are the potential environmental tradeoffs relevant to the use of in-situ burning?

A. As with all response methods, the environmental tradeoffs associated with in-situ burning must be considered on a case-by-case basis and weighed with operational tradeoffs. In-situ burning can offer important advantages over other response methods in specific cases, and may not be advisable in others, depending on the circumstances of a spill. In general, these are some of the pros and cons of ISB:

Pros:

- In-situ burning is one of the few response methods that can potentially remove large quantities of oil from the surface of the water with minimal investment of equipment and manpower.
- Burning may offer the only realistic means of removal that will reduce shoreline impacts in areas where containment and storage facilities may be overwhelmed by the sheer size of a spill, or in remote or inaccessible areas where other countermeasures are not practicable.
- If properly planned and implemented, in-situ burning may prevent or significantly reduce the extent of shoreline impacts, including exposure of sensitive natural, recreational, and commercial resources.
- Burning rapidly removes oil from the environment, particularly when compared to shoreline cleanup activities that may take months or even years to complete.
- In-situ burning moves residues into the atmosphere, where they are dispersed relatively quickly.
- Control of burn activities is relatively simple, provided containment is appropriate.

Cons:

- In-situ burning, when employed in its simplest form, generates large quantities of highly visible smoke that may adversely affect humans and other exposed populations downwind.

- Burn residues may sink, making it harder to recover the product and to prevent the potential exposure of benthic (bottom-dwelling) organisms.

- Plant and animal deaths and other adverse biological impacts may result from the localized temperature elevations at the sea surface. While these affects could be expected to occur over a relatively small area, in specific bodies of water at specific times of the year, affected populations may be large enough or important enough to reconsider burning as a cleanup technique.

- The long-term effects of burn residues on exposed populations of marine organisms have not been investigated. It is not known whether these materials would be significantly toxic in the long run.

- The burn must be carefully controlled in order to maintain worker safety.

Q. Isn't burning just trading water pollution for air pollution?

A. Air pollution from an in-situ burn is usually short-lived and consists mainly of smoke particulates. In certain concentrations, these particulates may be harmful to some persons. However, unburned oil is also a source of air pollution, mainly from evaporating hydrocarbon compounds that also present health hazards. These compounds also contribute to the formation of smog.

Q. Does ISB preclude other spill response measures?

A. There are three primary cleanup methods: in-situ burning, dispersants, and mechanical methods. Whether or not burning would limit the use of other spill response measures depends on the circumstances of a spill. In a major spill, it may be possible for all response techniques to be used simultaneously. The goal is to find the right mix of equipment, personnel, and techniques that will minimize a spill's environmental, socioeconomic, and cultural impacts.

Q. Are there long-term impacts to the environment from spilled oil?

A. Yes, oil spills can have serious long-term impacts to the environment. The long-term impacts to birds and mammals include lower reproduction rates and physical mutations in offspring. Harmful oil components can contaminate fish that are in turn eaten by other fish, seabirds, and humans, thus passing these harmful components up the food chain. Once oil is trapped in sediments, it can be recirculated into the water and remain in the food chain for many years. Some research indicates that oil can remain in sediments for hundreds of years.

From:
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